

Abstract:

A method and apparatus for determining the distance of each pixel or a set of pixels in images acquired by cameras and thus imaging the three-dimensional profiles of objects in the images is described. A source of illumination is projected through a mask of two-dimensional pattern onto the objects and images from predetermined and different view points are captured by a camera or cameras. A computer algorithm is used to identify a pixel or a set of pixels in each area of the pattern in each acquired image. The distance of the pixel or the set of pixels in the images is uniquely calculated by using the X, Y coordinates of the pixel or the set of pixels in the images of different view points and the positional relationship of the different view points. The three-dimensional profile of objects in the images is determined by collecting the distance information of each pixel or an area of pixels in the images.